BEATTY'S

SHORT METHOD

OF

COMPUTING INTEREST.

A NEW METHOD

—OF—

Computing Interest

FROM

Four Per Centum to Twelve Per Centum,

SHORT AND EASY METHOD,

—BY—

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MASSILLON, OHIO.

Designed for the use of Schools, Bankers and Business Men Generally.

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PREFACE.

IN THIS LITTLE BOOK, I have labored to obtain the desired result with the least work possible. It seems to me that much unnecessary work is expended upon examples, where the interest is desired, and it has been my aim to make the method shorter and easier. For instance, in the six per cent. method, why need we waste time by multiplying the entire principal by the number of days and dividing by sixty, when the same result can be had by dividing either the time or principle by six and multiply the quotient by the unused factor.

I have introduced several ways of obtaining interest under the same principle, and a good accountant will see at a glance, which one will be best to use. In presenting this book to the public, it must stand or fall on its own merits. I have no references or testimonials to accompany it, but publish it simply because I think it makes hard work much easier and shorter.

HENRY BEATTY.

Simple Interest.

Simple Interest is a sum paid for the use of money and is computed only on the principal at the specified rate.

Legal rate per cent., is the rate per cent. established by law. The legislature of each state makes its own law and can change the rate per cent., to suit the demand and supply of money. To compute interest we must have principal, time and rate per cent. given.

Principal is the sum of money, on which interest is paid.

Interest is the sum computed on the principal and must be paid by the party indebted for the principal.

Rate per cent. per annum, is the fractional parts of one dollar, paid for the use of one dollar for one year.

Amount, is the sum of the principal and interest.

Interest is the product of three factors—rate per cent. per annum, principal, and one thirty-sixth of the time in days, or the number of days, rate per cent., and one thirty-sixth of the principal.

Multiplying the one thirty-sixth by the rate per cent., we get as many one thirty-sixths as the rate per cent. may be. By this product, multiply the unused factor, and we have the interest.

A unit is one of any number of units, a cent being the lowest money value.

In this method of computing interest we take years, months and days together, and get as many tenths as tenths are contained in the given time, at any rate per cent. The higher the interest the more tenths are required in the same time. By dividing 360 days by 36, we get ten tenths for one year, the quotient of this divisor is one sixth of a quotient obtained by a divisor of six. By multiplying the ten tenths by the given rate per cent., we have the interest on one dollar for one year. Whereas, if we divide our time by six, our quotient will be six times ten tenths and can only be used for six per cent., unless we take one sixth of the quotient and multiply it by the rate per cent. By dividing by 36 or 12, we obtain the same result, but for the latter divisor, instead of reducing the months to days, we write the months and annex one third of the days. If the days are less than three, annex a cipher and $33\frac{1}{3}$ for one day and $66\frac{2}{3}$ for two days. If the days are three or more, dispense with the cipher. For one year, we write twelve months and annex a cipher (120). Thus written, it will stand as one to ten, or as thirty-six to three hundred and sixty.

It matters not whether we divide the time or the principal, though the time is preferable, unless the principal will divide evenly. In either case the quotient must be multiplied by the given rate per cent. At 6 per cent. on one dollar, we gain each day $1\frac{2}{3}$ hundredth of a cent. (Cent is a term used to express the one hundredth part of a dollar, consequently it's place is in the first order of the first period and is counted both in the ascending and descending scale.) In six days we gain $\frac{1}{10}$ of a cent. In 60 days, 1 cent, and in 600 days or 20 months, we gain 10 cents on every dollar. Between these numbers we get tenths, hundredths, &c.

1	Units,	1
	Tens,	
	Hundreds,	
2	Thousands,	2
	Ten thousands,	
	Hundred thousands,	
3	Millions,	3
	Ten millions,	
	Hundred millions.	

1	Units,	1
	Tenths,	
	Hundredths,	
2	Thousandths,	2
	Ten thousandths,	
	Hundred thousandths,	
3	Millionths,	3
	Tens millionths,	
	Hundred millionths.	

Though the above table could be carried almost beyond limit, it is necessary only to carry it far enough to show how important it is, when calculating interest, to place the figures in their proper order. One space to the left increases the value of any figure ten fold. Two spaces, one hundred fold, etc.. While one space to the right, decreases its value in the same proportion.

We place our zero to the right of cent or unit; all to the left of that line are cents and dollars, and all to the right are tenths, hundredths, thousandths, &c. The value of figures are known only by the order in which they are placed.

$$36)1.00(\|0 \mid 0 \mid 2\tfrac{7}{9}$$
$$\underline{72}$$
$$\frac{28}{36} = \frac{7}{9}$$

$2\frac{7}{9}$ is the quotient obtained by dividing 1 day by 36, and multiplying $2\frac{7}{9}$ by the different rates per cent. we obtain the following table.

NO. 1.

This table contains the interest on one dollar for one day at the different rates per cent.

	Units	T.	H.	Th.
3%	0	0	0	$8\frac{1}{3}$
4%	0	0	1	$1\frac{1}{9}$
5%	0	0	1	$3\frac{8}{9}$
6%	0	0	1	$6\frac{2}{3}$
7%	0	0	1	$9\frac{4}{9}$
8%	0	0	2	$2\frac{2}{9}$
9%	0	0	2	5
10%	0	0	2	$7\frac{7}{9}$
11%	0	0	3	$0\frac{5}{9}$
12%	0	0	3	$3\frac{1}{3}$

All to the right of the zero line are cut off. In computing on the fraction of one dollar cut off two places, and as many tenths, hundredths, thousandths, etc., as are annexed.

36 being $\frac{1}{10}$ of 360, by dividing 360 by 36, the quotient will be one per cent. of any rate per cent., be it 5, 6, or any other per cent.

By multiplying $2\frac{7}{9}$ thousandths, by 6 per cent., we obtain $16\frac{2}{3}$ or $1\frac{2}{3}$ hundredths which is the interest on one dollar for one day at 6%. For 6 days, 6 times $16\frac{2}{3}$, the product will be (1 | 0 | 0) 1 tenth of 1 unit.

Now, if it takes at 6%, 6 days to gain one tenth, it will take 10 times 6 to gain 10 tenths or 1 unit. To gain 6 units, it will take 6 times 60, or 360 days, (60 tenths in one year).

At 4%, multiply the 10 tenths by four and we have 40 tenths. At 4% it takes 9 days to gain 1 tenth and 90 days to gain 1 unit. Four times 90 days equals 360 days, or 1 year.

One year or 360 days, is the time upon which the rate per cent. is based. If the time is less than 360 days, the per cent. will be less than the rate per cent. per annum, and if the time

is more than 360 days, the per cent. will be more than the rate per cent. per annum.

In this method we compute any rate per cent. by dividing and multiplying, and when we divide either the time or the principal by 12 or 36, if the dividend will not contain the divisor, in the first two figures, write a cipher for the first figure in the quotient. By this we can see the value of our quotient. When we divide the time reduced to days by 36, and multiply the quotient by the required rate per cent. we have the interest on one dollar for the given time. Or divide the principal by 36, multiply by the rate per cent., this product by the number of days, and we have the required interest.

Now, we will reverse the above 360 days, and say 360 dollars. The quotient will be the same. Divide by 36, multiply the quotient by the rate per cent., this product by the number of days, and we have the required interest.

It matters not how long or short the time; by reducing the time to days, and dividing by 36, the quotient will be 1 per cent. of the interest for the given time. For example, we divide 240 days by 36, or 8 months by 12, our quotient will be $6\frac{2}{3}$ tenths, and by multiplying $6\frac{2}{3}$ by 6%, our product will be 40 tenths, or 4 cents.

We obtained the table of interest, beginning on page 13, by adding the fraction to the whole number, in the third column to the right, headed "Thousandths," of this small table, when the fraction was ½ or more, and rejecting the fraction when less than one-half. For instance, in the table of interest (page 13) at 6% we write .017 instead of .016$\frac{2}{3}$. On $3,000 the $\frac{1}{3}$ added will make the interest 1 cent more than it should be, and when $\frac{1}{2}$ is added we will have 1 cent more on $2,000 than the correct interest. This can be avoided by using this small table, or by using the column of figures at the extreme left in the interest table, beginning on page 13.

For example: Find interest on $342.00 for 25 days at 7%. Turn to page 24, run down the first column of figures till you reach 342, trace to the right and under the 7% column, you find 6650. Multiply this by the number of days and we find the interest to be $1.66.

	6650
	25
33	2 5 0
133	0 0
$1.66	2 5 0

In the following table (Page 13), the interest is counted on one dollar at the different rates per cent. for 360 days, (allowing 30 days for each month,) also for months and years separately. The unit or zero line is to the left of the three right hand figures. All on the left of that line are cents and dollars, and all on the right are tenths, hundredths, thousandths, etc.

We have obtained this table by the following rule: Write the number of months, annex one third of the days, and divide by twelve, or the same result is obtained by dividing the *entire* number of days, *including the months*, by thirty-six. Then multiply the quotient by the given rate per cent, and the result will be the interest on *one* dollar for the given time.

To find the interest on a given sum for a given time at a given rate per cent., turn to the table, run down the first column of figures, representing time, till you reach the given time. Follow to the right, till you reach the figure under the column headed by the given rate per cent., and multiply the given principal by this figure. Cut off three right hand figures and allow two places for cents.

EXAMPLE 1. Find the interest on $36.00 for 18 days, at 7%.

⅓ of 18 days=6 days.

12)6.00
050
7
350
$36
2100
1050
.12,600

or

36)1800
050
7
350
$36
.12,600

In the table run down the column representing time, until you reach the 18 days. Follow to the right and under the 7% column we find the number 0350. Multiply $36.00 by this number, cut off the three right hand figures, and we have the required amount, 12 cents.

EXAMPLE 2. Find the interest on $50.00 for 3 months 18 days, at 6%.

⅓ of 18 days=6 days.

12)3600
300
6
1800
$50
.90000

or

3 months=90 days
18
36)108 "
0300
6
1800
$50
.90,000

To use table, follow as before.

EXAMPLE 3. Find the interest on $100.00 for 2 years, 6 months at 8%.

2 years=24 months.
6
12)30 "
2.500
8
20000
$100
$20.00,000

or

2 years=720 days.
6 months=180 "
36)900 "
2.500
8
20000
$100
$20.00,000

EXAMPLE 4. Find the interest on $9,729.00 for 6 days, at 6%.

36)600
016⅔
6
100

9729
100
$9.72,900

In the above examples we have annexed ciphers, the same as in the table of interest. In example No. 1 we have annexed one unnecessary cipher which is one thousandth of a unit, and by dispensing with that we have two figures to cut off: tenths and hundredths.

In examples two and three, we have in each two unnecessary ciphers, and by dispensing with them, we have but the tenths cut off in either.

Example 4 has two unnecessary ciphers annexed, but with them annexed we see that the principal and interest are precisely the same. In examples like this we cut of the right hand dollar figure from the principal with all to the right of it, and the interest remains.

D	4%	5%	6%	7%	8%	9%	10%	11%	12%
1	0.011	0.014	0.017	0.019	0.022	0.025	0.028	0.031	0.033
2	0.022	0.028	0.033	0.039	0.044	0.050	0.056	0.061	0.067
3	0.033	0.042	0.050	0 058	0.067	0.075	0.083	0.092	0.100
4	0.044	0.056	0.067	0 078	0.089	0.100	0.111	0.122	0.133
5	0.056	0.069	0.083	0.097	0.111	0.125	0.139	0.153	0 167
6	0.067	0.083	0.100	0.117	0.133	0.150	0.167	0.183	0.200
7	0.078	0.097	0.117	0.136	0.156	0.175	0.194	0.214	0.233
8	0.089	0.111	0.133	0.156	0.178	0 200	0.222	0.244	0.267
9	0.100	0.125	0.150	0.175	0.200	0 225	0.250	0.275	0.300
10	0.111	0.139	0.167	0.194	0 222	0 250	0.278	0 306	0.333
11	0.122	0.153	0.183	0.214	0.244	0 275	0.306	0.336	0.367
12	0.133	0.167	0 200	0 233	0.267	0.300	0.333	0.367	0.400
13	0.144	0.181	0 217	0.253	0.289	0.325	0.361	0 397	0.433
14	0.156	0.194	0.233	0.272	0.311	0 350	0 389	0.428	0.467
15	0.167	0.208	0.250	0.292	0.333	0.375	0 417	0 458	0.500
16	0.178	0 222	0.267	0.311	0 356	0.400	0.444	0.485	0.533
17	0.189	0.236	0.283	0.331	0.378	0.425	0.472	0.519	0.567
18	0.200	0.250	0.300	0.350	0.400	0.450	0.500	0.550	0.600
19	0.211	0.264	0.317	0.369	0.422	0 475	0.528	0.581	0.633
20	0.222	0.278	0 333	0.389	0.444	0.500	0.556	0.611	0.667
21	0.233	0.292	0.350	0.408	0.467	0.525	0.583	0.642	0.700
22	0.244	0.306	0.367	0.428	0.489	0.550	0.611	0.672	0.733
23	0.256	0.319	0.383	0.447	0.511	0.575	0.639	0.703	0.767
24	0.267	0.333	0.400	0.467	0.533	0.600	0.667	0.733	0.800
25	0.278	0.347	0.417	0.486	0.556	0.625	0.694	0.764	0.833
26	0.289	0.361	0.433	0.506	0.578	0.650	0.722	0.794	0.867
27	0.300	0.375	0.450	0.525	0.600	0 675	0.750	0.825	0 900
28	0.311	0.389	0.467	0.544	0.622	0.700	0.778	0.856	0.933
29	0.322	0.403	0.483	0.564	0.644	0 725	0.806	0.886	0 967
30	0.333	0.417	0.500	0.583	0.667	0.750	0.833	0 917	1.000

	M	D	4%	5%	6%	7%	8%	9%	10%	11%	12%
31	1	1	0.345	0.431	0.517	0.603	0.689	0.775	0 862	0.947	1.033
32	"	2	0.356	0.444	0.533	0.622	0.711	0.800	0.897	0.978	1.067
33	"	3	0.367	0.458	0.550	0.642	0.733	0.825	0.923	1.008	1.100
34	"	4	0.378	0.472	0.567	0.661	0.756	0.850	0 948	1.016	1.133
35	"	5	0.389	0.486	0.583	0.681	0.778	0.875	0.974	1.069	1.167
36	"	6	0.400	0.500	0.600	0.700	0 800	0.900	1.000	1.100	1.200
37	"	7	0.411	0 514	0.617	0.719	0.822	0.925	1.028	1.131	1.233
38	"	8	0.422	0.528	0.633	0.739	0.844	0.950	1.056	1.161	1 267
39	"	9	0.433	0.542	0.650	0.758	0.867	0.975	1.083	1.192	1.300
40	"	10	0.444	0 556	0.667	0.778	0.889	1.000	1.111	1.222	1.333
41	"	11	0 456	0.569	0.683	0.795	0 911	1.025	1.139	1.253	1.367
42	"	12	0.467	0.583	0.700	0.817	0.933	1.050	1.167	1.283	1.400
43	"	13	0.478	0.597	0.717	0.836	0.956	1.075	1.194	1.314	1.433
44	"	14	0.489	0.611	0.733	0.856	0.978	1.100	1.222	1.344	1.467
45	"	15	0.500	0 625	0.750	0.875	1.000	1.125	1.250	1.375	1.500
46	"	16	0.511	0.639	0.767	0.894	1.022	1.150	1.278	1.406	1.533
47	"	17	0.522	0.653	0.783	0.914	1.044	1.175	1.306	1.437	1.567
48	"	18	0.533	0.667	0.800	0.933	1.067	1.200	1.333	1.470	1.600
49	"	19	0.544	0.681	0.817	0.953	1.089	1.225	1.361	1.497	1.633
50	"	20	0.556	0.694	0.833	0 972	1.111	1.250	1.389	1.528	1.667
51	"	21	0.567	0.708	0.850	0.992	1.133	1.275	1.417	1.558	1.700
52	"	22	0.578	0.722	0.867	1.011	1.156	1.300	1.444	1.589	1.733
53	"	23	0.589	0.736	0.883	1.031	1.178	1.325	1.472	1.619	1.767
54	"	24	0.600	0.750	0.900	1.050	1.200	1.350	1.500	1.650	1.800
55	"	25	0.611	0.764	0.917	1.069	1.222	1.375	1.528	1.681	1.833
56	"	26	0.622	0.778	0.933	1.089	1.244	1.400	1.556	1.711	1.867
57	"	27	0.633	0 792	0.950	1.108	1.267	1.425	1.583	1.742	1.900
58	"	28	0.644	0.806	0.967	1.128	1.289	1.450	1 611	1.772	1.933
59	"	29	0.656	0.819	0.983	1.147	1.311	1.475	1.639	1.803	1.967
60	"	30	0.667	0.833	1.000	1.167	1.333	1.500	1.667	1.833	2.000

	M	D	4%	5%	6%	7%	8%	9%	10%	11%	12%
61	2	1	0.678	0.847	1.017	1.186	1.356	1.525	1.694	1.864	2.033
62	"	2	0.689	0.861	1.033	1.206	1.378	1.550	1.722	1.893	2 067
63	"	3	0.700	0.875	1.050	1.225	1.400	1.575	1.750	1 925	2.100
64	"	4	0.711	0.886	1.067	1 244	1·422	1.600	1.778	1.950	2.133
65	"	5	0.722	0.903	1.083	1.264	1.444	1.625	1 806	1.986	2.167
66	"	6	0.733	0.917	1.100	1.283	1.467	1.650	1.833	2.017	2.200
67	"	7	0.744	0.931	1.117	1.303	1.489	1.675	1.861	2.056	2.233
68	"	8	0.756	0.944	1.133	1.322	1.511	1.700	1.889	2.078	2 267
69	"	9	0.767	0.958	1.150	1.342	1.533	1.725	1.917	2.108	2.300
70	"	10	0.778	0.972	1.167	1.361	1.556	1.750	1 944	2.139	2.333
71	"	11	0.789	0.986	1.183	1.381	1.578	1.775	1.972	2.169	2.367
72	"	12	0.800	1.000	1.200	1.400	1.600	1.800	2.000	2.200	2.400
73	"	13	0.811	1.014	1.217	1.419	1.622	1.825	2.028	2.231	2.433
74	"	14	0.822	1.028	1.233	1.439	1.644	1.850	2.056	2.261	2 467
75	"	15	0 833	1.042	1.250	1.458	1.667	1.875	2.083	2.292	2.500
76	"	16	0.844	1.056	1.267	1.478	1.689	1.900	2 111	2.322	2.533
77	"	17	0.856	1.069	1.283	1.497	1.711	1.925	2.139	2.353	2.567
78	"	18	0.867	1.083	1.300	1.517	1.733	1.950	2.167	2.383	2.600
79	"	19	0.878	1.097	1.317	1.536	1.756	1.975	2.194	2.414	2.633
80	"	20	0.889	1.111	1.333	1.556	1.778	2.000	2.222	2.444	2.667
81	"	21	0 900	1.125	1.350	1.575	1.800	2.025	2.250	2.475	2.700
82	"	22	0.911	1.139	1.367	1.595	1.822	2.050	2.278	2.506	2.733
83	"	23	0.922	1.153	1.383	1.614	1.844	2.075	2.306	2 536	2.767
84	"	24	0.933	1.167	1.400	1.633	1.867	2.100	2.333	2.567	2.800
85	"	25	0.944	1.181	1.417	1.653	1.889	2.125	2 361	2.597	2.833
86	"	26	0.956	1.194	1.433	1.672	1.911	2.150	2 389	2.628	2 867
87	"	27	0.967	1.208	1.450	1.692	1.933	2.175	2.417	2.658	2.900
88	"	28	0.978	1.222	1.467	1.711	1.956	2.200	2.444	2.689	2.933
89	"	29	0.989	1.236	1.483	1.731	1.978	2.225	2.472	2.719	2.967
90	"	30	1.000	1.250	1.500	1.750	2.000	2.250	2.500	2.750	3.000

	M	D	4%	5%	6%	7%	8%	9%	10%	11%	12%
91	3	1	1.011	1.264	1.517	1.769	2.022	2.275	2 528	2.781	3.033
92	"	2	1.022	1.278	1.533	1.789	2.044	2.300	2 556	2 811	3.067
93	"	3	1.033	1.292	1 550	1 808	2.067	2.325	2.583	2.842	3.100
94	"	4	1.044	1.306	1.567	1 828	2.089	2.350	2 611	2.872	3.133
95	"	5	1.056	1.319	1.583	1.847	2.111	2 375	2 639	2.902	3 167
96	"	6	1.067	1.333	1.600	1 867	2 133	2.400	2.667	2.933	3.200
97	"	7	1.078	1.347	1 617	1.886	2.156	2.425	2.694	2.964	3.233
98	"	8	1.089	1.361	1.633	1.906	2.178	2.450	2.722	2.994	3.267
99	"	9	1.100	1.375	1.650	1.925	2 200	2.475	2.750	3 025	3.300
100	"	10	1.111	1.389	1.667	1.944	2.222	2 500	2.778	3.056	3 333
101	"	11	1.122	1.403	1.683	1 964	2.244	2 525	2.806	3.086	3.367
102	"	12	1.133	1.417	1.700	1 983	2.267	2 550	2.833	3.117	3.400
103	"	13	1.144	1.431	1.717	2.003	2.289	2 575	2 861	3.147	3.433
104	"	14	1.156	1.444	1.733	2.023	2.311	2.600	2 889	3.178	3.467
105	"	15	1.167	1.458	1.750	2 042	2.333	2.625	2 917	3 208	3.500
106	"	16	1.178	1.472	1.767	2.061	2 356	2 650	2.944	3.239	3.533
107	"	17	1.189	1.486	1.783	2.081	2.378	2.675	2.972	3.269	3.567
108	"	18	1.200	1.500	1.800	2.100	2.400	2.700	3.000	3.300	3.600
109	"	19	1.211	1.514	1.817	2.119	2.422	2.725	3.028	3.331	3.633
110	"	20	1.222	1.528	1.833	2.139	2.444	2.750	3.056	3.361	3.667
111	"	21	1.233	1.542	1.850	2.158	2.467	2.775	3.083	3.392	3.700
112	"	22	1.244	1.556	1.867	2.178	2.489	2.800	3.111	3.422	3.733
113	"	23	1.256	1.569	1.883	2.197	2.511	2.825	3.139	3.453	3.767
114	"	24	1 267	1.583	1.900	2.217	2.533	2 850	3.167	3.483	6.800
115	"	25	1.278	1.597	1.917	2.236	2.556	2.875	3.194	3.514	3 833
116	"	26	1.289	1.611	1.933	2 256	2.578	2.900	3.222	3.544	3.867
117	"	27	1.300	1 625	1.950	2.275	2.600	2.925	3.250	3.575	3.900
118	"	28	1.311	1.639	1.967	2.295	2.622	2.950	3.278	3.606	3.933
119	"	29	1.322	1.653	1.983	2.314	2.644	2 975	3 306	3.636	3.967
120	"	30	1.333	1.667	2.000	2 333	2 667	3 000	3 333	3 667	4 000

	M	D	4%	5%	6%	7%	8%	9%	10%	11%	12%
121	4	1	1.344	1.681	2.017	2.353	2.689	3.025	3 361	3.697	4.033
122	"	2	1.356	1.694	2 033	2.372	2.711	3.050	3 389	3.728	4 067
123	"	3	1.367	1.708	2.050	2.392	2.733	3.075	3.417	3.758	4.100
124	"	4	1.378	1.722	2.067	2.411	2.756	3.100	3.444	3.789	4.133
125	"	5	1.389	1.736	2.083	2.431	2.778	3.125	3.472	3.819	4.167
126	"	6	1.400	1.750	2.100	2.450	2 800	3.150	3.500	3 850	4.200
127	"	7	1.411	1.764	2.117	2.469	2.822	3.175	3 528	3.881	4.233
128	"	8	1.422	1.778	2.133	2.489	2.844	3.200	3.556	3.911	4 267.
129	"	9	1.433	1.792	2.150	2.508	2.867	3.225	6.583	3 942	4.300
130	"	10	1.444	1 806	2.167	2.528	2.889	3.250	3.611	3.972	4.333
131	"	11	1.456	1.819	2.183	2 547	2.911	3 275	3 639	4 003	4.367
132	"	12	1.467	1.833	2.200	2.567	2.933	3.300	3.667	4.033	4.400
133	"	13	1.478	1.847	2 217	2.586	2.956	3.325	3.694	4.064	4.433
134	"	14	1.489	1.861	2.233	2.606	2.978	3 350	3.722	4.094	4.467
135	"	15	1.500	1.875	2.250	2.625	3.000	3.375	3.750	4 125	4.500
136	"	16	1.511	1.889	2.267	2.645	3.022	3.400	3.778	4.156	4.533
137	"	17	1.522	1.903	2 283	2.664	3.044	3 425	3 806	4.186	4.567
138	"	18	1.533	1.917	2 300	2.683	3.067	3.450	3.833	4.217	4.600
139	"	19	1.544	1.931	2 317	2.703	3.089	3.475	3 861	4.247	4.633
140	"	20	1.556	1.944	2.333	2.722	3.111	3.500	3.889	4.278	4.667
141	"	21	1.567	1.958	2.350	2 742	3.133	3.525	3.917	4.308	4.700
142	"	22	1.578	1.972	2 367	2.761	3.156	3.550	3 944	4.339	4.733
143	"	23	1.589	1.986	2 383	2.781	3.178	3.575	3.972	4.369	4.767
144	"	24	1.600	2.000	2.400	2.800	3.200	3.600	4.000	4.400	4.800
145	"	25	1.611	2.014	2.417	2.820	3.222	3.625	4.028	4.431	4.833
146	"	26	1.622	2.028	2.433	2.839	3.244	3.650	4 056	4.461	4.867
147	"	27	1.633	2.042	2.450	2.858	3.267	3.675	4 083	4.492	4.900
148	"	28	1.644	2.056	2.467	2.878	3.289	3.700	4 111	4 522	4.933
149	"	29	1.656	2.069	2.483	2 897	3.311	3.725	4.139	4.553	4 967
150	"	30	1.667	2.083	2.500	2 917	3.333	3.750	4.167	4.583	5.000

	M	D	4%	5%	6%	7%	8%	9%	10%	11%	12%
151	5	1	1.678	2.097	2.517	2.936	3.356	3.775	4.194	4.614	5.033
152	"	2	1.689	2.111	2.533	2 956	3.378	3.800	4.222	4.644	5.067
153	"	3	1.700	2.125	2.550	2 975	3.400	3 825	4.250	4.675	5.100
154	"	4	1.711	2.139	2.567	2.994	3.422	3 850	4.278	4.706	5.133
155	"	5	1.722	2.153	2.583	3 014	3.444	3.875	4.306	4.736	5 167
156	"	6	1.733	2.167	2 600	3.033	3.467	3.900	4.333	4.767	5 200
157	"	7	1.744	2.181	2.617	3.053	3.489	3 925	4.361	4.797	5.233
158	"	8	1.756	2.194	2.633	3.072	3.511	3.950	4.389	4.822	5.267
159	"	9	1.767	2 208	2.650	3.092	3 533	3 975	4.417	4.858	5.300
160	"	10	1.778	2.222	2.667	3.111	3 556	4 000	4.444	4.889	5.333
161	"	11	1.789	2.236	2.683	3.131	3.578	4.025	4.472	4.919	5.367
162	"	12	1 800	2.250	2.700	3.150	3 600	4.050	4.500	4 950	5.400
163	"	13	1.811	2.264	2.717	3.169	3 622	4 075	4.528	4.981	5.433
164	"	14	1.822	2.278	2.733	3.189	3.644	4.100	4 556	5 011	5 467
165	"	15	1.833	2.292	2.750	3 208	3.667	4 125	4.583	5.042	5.500
166	"	16	1 844	2.306	2.767	3.228	3.689	4.150	4 611	5 072	5.533
167	"	17	1 856	2.319	2.783	3.247	3.711	4.175	4 639	5.103	5.567
168	"	18	1.867	2.333	2.800	3 267	3.733	4 200	4.667	5.133	5.600
169	"	19	1.878	2.347	2.817	3.286	3.756	4.225	4.694	5.164	5.633
170	"	20	1.889	2.361	2.833	3.306	3.778	4.250	4.722	5.194	5.667
171	"	21	1.900	2.375	2.850	3.325	3.800	4.275	4.750	5 225	5.700
172	"	22	1.911	2.389	2.867	3.344	3.822	4 300	4.778	5.256	5.733
173	"	23	1.922	2.403	2.883	3.364	3.844	4 325	4.806	5 286	5.767
174	"	24	1.933	2 417	2.900	3 383	3.867	4.350	4 833	5.317	5 800
175	"	25	1.944	2.431	2.917	3.403	3.889	4.375	4 861	5 347	5 833
176	"	26	1.956	2.444	2.933	3.422	3.911	4 400	4 889	5.378	5.867
177	"	27	1 967	2.458	2.950	3.442	3.933	4.425	4.917	5 408	5 900
178	"	28	1.978	2 472	2.967	3.461	3.956	4.450	4.944	5.439	5.933
179	"	29	1.989	2.486	2.983	3.481	3.978	4.475	4.972	5.469	5.967
180	"	30	2.000	2.500	3.000	3.500	4.000	4.500	5 000	5.500	6 000

	M	D	4%	5%	6%	7%	8%	9%	10%	11%	12%
181	6	1	2.011	2.514	3.017	3.519	4.022	4.525	5 028	5.531	6.033
182	"	2	2.022	2.528	3.033	3.539	4.044	4 550	5 056	5 561	6.067
183	"	3	2.033	2.542	3.050	3 558	4.067	4.575	5.083	5.592	6.100
184	"	4	2.044	2.556	3.067	3 578	4.089	4.600	5.111	5 622	6.133
185	"	5	2.056	2.569	3.083	3.597	4.111	4 625	5 139	5.653	6 167
186	"	6	2 067	2.583	3.100	3.617	4 133	4.650	5.167	5.683	6 200
187	"	7	2.078	2.597	3.117	3.636	4.156	4 675	5.194	5.714	6.233
188	"	8	2.089	2.611	3.133	3.656	4.178	4.700	5.222	5.744	6.267
189	"	9	2.100	2.625	3.150	3.675	4.200	4.725	5.250	5.775	6.300
190	"	10	2.111	2.639	3 167	3 694	4.222	4.750	5.278	5.806	6 333
191	"	11	2.122	2.653	3 183	3 714	4.244	4 775	5 306	5 836	6 367
192	"	12	2.133	2.667	3 200	3 733	4 267	4 800	5 333	5.867	6.400
193	"	13	2.144	2.681	3 217	3.753	4.289	4 825	5 361	5 897	6 433
194	"	14	2.156	2.694	3.233	3.772	4.311	4 850	5.389	5.928	6 467
195	"	15	2.167	2.708	3.250	3.792	4.333	4 875	5 417	5 958	6.500
196	"	16	2.178	2.722	3.267	3.811	4.356	4 900	5.444	5 989	6.533
197	"	17	2.189	2.736	3 283	3.831	4.378	4.925	5.472	6.019	6.567
198	"	18	2.200	2.750	3.300	3.850	4.400	4.950	5.500	6.050	6.600
199	"	19	2.211	2.764	3.317	3 869	4.422	4.975	5.528	6.081	6.633
200	"	20	2.222	2.778	3.333	3.889	4.444	5 000	5 556	6.111	6.667
201	"	21	2.233	2.792	3.350	3 908	4.467	5 025	5.583	6.142	6.700
202	"	22	2.244	2.806	3 367	3.928	4.489	5.050	5 611	6.172	6.733
203	"	23	2.256	2.819	3.383	3.947	4.511	5.075	5.639	6 203	6 767
204	"	24	2.267	2.833	3.400	3.966	4.533	5 100	5.667	6.233	6.800
205	"	25	2.278	2.847	3.417	3.986	4.556	5.125	5 694	6 264	6 833
206	"	26	2.289	2.861	3 433	4006	4.578	5.150	5.722	6.294	6.867
207	"	27	2.300	2 875	3.450	4 025	4.600	5.175	5.750	6.325	6 900
208	"	28	2.311	2.889	3.467	4.044	4.622	5.200	5.778	6.356	6.933
209	"	29	2.322	2 903	3.483	4.064	4 644	5 225	5.806	6.386	6.967
210	"	30	2.333	2.917	3.500	4.083	4.667	5.250	5.833	6.417	7 000

	M	D	4%	5%	6%	7%	8%	9%	10%	11%	12%
211	7	1	2.344	2.931	3.517	4.103	4.689	5.275	5 861	6.447	7.033
212	"	2	2.356	2.944	3.533	4.122	4.711	5.300	5 889	6.478	7 067
213	"	3	2.367	2.958	3.550	4.142	4.733	5 325	5.917	6 508	7.100
214	"	4	2.378	2.972	3.567	4.161	4.756	5 350	5.944	6 539	7.133
215	"	5	2.389	2.986	3.583	4.181	4.778	5.375	5 972	6.569	7.167
216	"	6	2.400	3.000	3.600	4.200	4 800	5.400	6.000	6.600	7.200
217	"	7	2.411	3 014	3.617	4.219	4.822	5.425	6.028	6.631	7 233
218	"	8	2.422	3 028	3.633	4.239	4.844	5.450	6.056	6.661	7 267
219	"	9	2.433	3.042	3 650	4.258	4 867	5.475	6.083	6.692	7.300
220	"	10	2.444	3 056	3.667	4.278	4 889	5.500	6.111	6.722	7.333
221	"	11	2.456	3.069	3.683	4 297	4 911	5.525	6.139	6 753	7.367
222	"	12	2.467	3 083	3.700	4.317	4.933	5.550	6.167	6.783	7.400
223	"	13	2.478	3.097	3.717	4.336	4 956	5.575	6.194	6.814	7.433
224	"	14	2.489	3.111	3.733	4.356	4.978	5 600	6.222	6 844	7.467
225	"	15	2.500	3 125	3.750	4.375	5.000	5.625	6.250	6.875	7.500
226	"	16	2.511	3.139	3.767	4.394	5.022	5.650	6.278	6 906	7.533
227	"	17	2.522	3.153	3.783	4.414	5.044	5 675	6 306	6 936	7.567
228	"	18	2.533	3.167	3 800	4.433	5.067	5.700	6.333	6.967	7.600
229	"	19	2.544	3.181	3 817	4.453	5.089	5.725	6 361	6.997	7.633
230	"	20	2.556	3.194	3 833	4.472	5.111	5.750	6.389	7.028	7.667
231	"	21	2.567	3.208	3.850	4 492	5.133	5.775	6.417	7.058	7.700
232	"	22	2.578	3.222	3.867	4 511	5.156	5.800	6 444	7.089	7.733
233	"	23	2.589	3.236	3 883	4.531	5.178	5.825	6.472	7.119	7.767
234	"	24	2.600	3.250	3 900	4.550	5.200	5.850	6.500	7.150	7.800
235	"	25	2.611	3.264	3.917	4.569	5.222	5.875	6.528	7.181	7.833
236	"	26	2.622	3.278	3.933	4 589	5.244	5.900	6.556	7.211	7.867
237	"	27	2.633	3 292	3.950	4 608	5.267	5 925	6.583	7.242	7.900
238	"	28	2.644	3.306	3 967	4.628	5.289	5.950	6 611	7.272	7.933
239	"	29	2.656	3.319	3.983	4 647	5.311	5 975	6.639	7.303	7.967
240	"	30	2.667	3.333	4.000	4 667	5.333	6.000	6.667	7.333	8.000

	M	D	4%	5%	6%	7%	8%	9%	10%	11%	12%
241	8	1	2 678	3.347	4.017	4.686	5.356	6.025	6.694	7.364	8.033
242	"	2	2.689	3.361	4 033	4.706	5.378	6.050	6.722	7.394	8.067
243	"	3	2.700	3.375	4 050	4.725	5.400	6.075	6.750	7.425	8.100
244	"	4	2.711	3.389	4 067	4 741	5·422	6.100	6 778	7.456	8.133
245	"	5	2.722	3.403	4.083	4.767	5.444	6.125	6 806	7 486	8.167
246	"	6	2.733	3.417	4.100	4 783	5.467	6.150	6.833	7.517	8.200
247	"	7	2.744	3.431	4.117	4.803	5.489	6.175	6.861	7.547	8.233
248	"	8	2.756	3.444	4.133	4.822	5.511	6.200	6.889	7.578	8 267
249	"	9	2 767	3.458	4.150	4.842	5.533	6 225	6.917	7.608	8.300
250	"	10	2.778	3.472	4.167	4.861	5.556	6.250	6 944	7.639	8.333
251	"	11	2.789	3.486	4.183	4.881	5.578	6.275	6.972	7.669	8.367
252	"	12	2 800	3.500	4.200	4.900	5.600	6.300	7.000	7.700	8.400
253	"	13	2.811	3.514	4.217	4.919	5.622	6 325	7.028	7.731	8.433
254	"	14	2 822	3.528	4.233	4.939	5.644	6.350	7.056	7.761	8 467
255	"	15	2.833	3.542	4.250	4 958	5.667	6.375	7.083	7.792	8.500
256	"	16	2.844	3.556	4.267	4 978	5.689	6.400	7 111	7 822	8.533
257	"	17	2 856	3.569	4.283	4.997	5.711	6.425	7.139	7.853	8.567
258	"	18	2.867	3.583	4 300	5.017	5.733	6.450	7.167	7 883	8.600
259	"	19	2.878	3.597	4.317	5.036	5.756	6.475	7.194	7.914	8.633
260	"	20	2.889	3.611	4.333	5.056	5.778	6.500	7.222	7.944	8.667
261	"	21	2.900	3.625	4.350	5.075	5.800	6.525	7.250	7 975	8.700
262	"	22	2.911	3.639	4.367	5.094	5.822	6.550	7.278	8.006	8.733
263	"	23	2.922	3 653	4.383	5.114	5.844	6.575	7.306	8.036	8.767
264	"	24	2.933	3.667	4.400	5.133	5.867	6.600	7.333	8.067	8.800
265	"	25	2.944	3.681	4.417	5.153	5.889	6.625	7 361	8.097	8.833
266	"	26	2.956	3.694	4.433	5.172	5.911	6.650	7.389	8.128	8 867
267	"	27	2 967	3.708	4.450	5.192	5.933	6.675	7.417	8.158	8.900
268	"	28	2.978	3.722	4.467	5.211	5.956	6.700	7.444	8.189	8.933
269	"	29	2.989	3.736	4.483	5.231	5.978	6.725	7.472	8.219	8.967
270	"	30	3.000	3.750	4.500	5.250	6.000	6.750	7.500	8.250	9.000

	M	D	4%	5%	6%	7%	8%	9%	10%	11%	12%
271	9	1	3.011	3.764	4.517	5.269	6.022	6.775	7.528	8.281	9.033
272	"	2	3.022	3.778	4.533	5.289	6.044	6.800	7.556	8 311	9.067
273	"	3	3.033	3.792	4.550	5 308	6.067	6 825	7.583	8.342	9.100
274	"	4	3.044	3.806	4.567	5 323	6.089	6.850	7 611	8 372	9.133
275	"	5	3.056	3.819	4.583	5.347	6.111	6.875	7 639	8.403	9 167
276	"	6	3.067	3.833	4 6.0	5 367	6 133	6.900	7.669	8.433	9 200
277	"	7	3.078	3.847	4.617	5.386	6 156	6 925	7.694	8.464	9.233
278	"	8	3.089	3 861	4.633	5.406	6.178	6.950	7.722	8.494	9.267
279	"	9	3 100	3.875	4.650	5.425	6 200	6 975	7.750	8.525	9.300
280	"	10	3.111	3.889	4.667	5 444	6.222	7.000	7.778	8.556	9.333
281	"	11	3.122	3 903	4.683	5.464	6.244	7.025	7.806	8.586	9.367
282	"	12	3.133	3.917	4.700	5 483	6.267	7.050	7 833	8.617	9.400
283	"	13	3.144	3.931	4 717	5.503	6.289	7 075	7 861	8.647	9.433
284	"	14	3 156	3.944	4.733	5.522	6.311	7.100	7 889	8.678	9 467
285	"	15	3.167	3 958	4.750	5.542	6 333	7.125	7 917	8.708	9.500
286	"	16	3.178	3 972	4.767	5.561	6 356	7.150	7.944	8.739	9.533
287	"	17	3.189	3.986	4.783	5.581	6.378	7.175	7.972	8.769	9.567
288	"	18	3.200	4.000	4.800	5.600	6.400	7 200	8.000	8 800	9.600
289	"	19	3.211	4.014	4.817	5.619	6.422	7.225	8.028	8.831	9.633
290	"	20	3.222	4.028	4.833	5.639	6.444	7.250	8.056	8.861	9.667
291	"	21	3.233	4.042	4.850	5 658	6.467	7.275	8.083	8 892	9.700
292	"	22	3.244	4.056	4.867	5.678	6.489	7 300	8.111	8.922	9.733
293	"	23	3.256	4.069	4.883	5 697	6.511	7 325	8.139	8.951	9.767
294	"	24	3.267	4.083	4.900	5.717	6.533	7.350	8.167	8.984	9 800
295	"	25	3.278	4.097	4.917	5.736	6.556	7 375	8 194	9 014	9 833
296	"	26	3.289	4.111	4.933	5.756	6.578	7.400	8.222	9.044	9.867
297	"	27	3.300	4 125	4 950	5 775	6.600	7.425	8 250	9 075	9 900
298	"	28	3.311	4.139	4.967	5.794	6.622	7.450	8 278	9.106	9.933
299	"	29	3.322	4.153	4.983	5.814	6.644	7.475	8.306	9.136	9.967
300	"	30	3 333	4.167	5.000	5.833	6 667	7.500	8 333	9 167	10 000

	M D	4%	5%	6%	7%	8%	9%	10%	11%	12%
301	10 1	3.344	4.181	5.017	5.853	6 689	7.525	8 361	9.197	10.033
302	" 2	3.356	4.194	5.033	5.872	6.711	7.550	8.389	9.228	10 067
303	" 3	3.367	4.208	5 050	5.892	6.733	7 575	8.417	9 258	10.100
304	" 4	3 378	4.222	5.067	5 911	6.756	7.600	8 444	9.289	10.133
305	" 5	3.389	4.236	5.083	5 931	6 778	7 625	8.472	9.319	10.167
306	" 6	3.400	4.250	5.100	5.950	6 800	7.650	8.500	9 350	10.200
307	" 7	3.411	4 264	5 117	5.969	6.822	7.675	8 528	9.381	10.233
308	" 8	3.422	4 278	5 133	5.989	6.844	7.700	8.556	9.411	10.267
309	" 9	3.433	4 292	5.150	6 008	6 867	7.725	8.583	9.442	10.300
310	" 10	3.444	4 306	5.167	6.028	6 889	7.750	8.611	9.472	10.333
311	" 11	3 456	4.319	5.183	6 047	6 911	7.775	8 639	9 503	10.367
312	" 12	3.467	4 333	5.200	6.067	6.933	7.800	8.667	9.533	10.400
313	" 13	3.478	4.347	5 217	6.086	6.956	7 825	8.694	9.564	10.433
314	" 14	3.489	4.361	5.233	6.106	6.978	7.850	8.722	9.594	10.467
315	" 15	3.500	4.375	5.250	6.125	7.000	7.875	8.750	9 625	10.500
316	" 16	3.511	4.389	5.267	6.144	7.022	7 900	8.778	9 656	10.533
317	" 17	3.522	4.403	5.283	6.164	7.044	7.925	8 806	9.686	10.567
318	" 18	3.533	4.417	5 300	6.183	7.067	7 950	8.833	9.714	10.600
319	" 19	3.544	4.431	5.317	6 203	7.089	7.975	8.861	9.747	10.633
320	" 20	3.556	4.444	5.333	6.222	7.111	8.000	8.889	9.778	10.667
321	" 21	3.567	4 458	5.350	6 242	7.133	8.025	8.917	9.808	10.700
322	" 22	3.578	4.472	5.367	6.261	7.156	8.050	8.944	9 839	10.733
323	" 23	3.589	4.486	5 383	6.281	7.178	8.075	8.972	9.869	10.767
324	" 24	3.600	4 500	5.400	6.300	7.200	8.100	9.000	9 900	10.800
325	" 25	3.611	4.514	5.417	6.319	7.222	8.125	9.028	9.931	10.833
326	" 26	3.622	4.528	5.433	6 339	7.244	8.150	9 056	9.961	10.867
327	" 27	3.633	4 542	5.450	6.358	7.267	8 175	9.083	9.992	10 900
328	" 28	3.644	4 556	5 467	6.378	7.289	8.200	9 111	10.022	10.933
329	" 29	3.656	4.569	5.483	6 397	7.311	8 225	9.139	10.053	10.967
330	" 30	3 667	4.583	5 500	6 416	7.333	8.250	9.167	10.081	11.000

	M	D	4%	5%	6%	7%	8%	9%	10%	11%	12%
331	11	1	3.678	4.597	5.517	6 436	7.356	8 275	9.194	10.114	11.033
332	"	2	3.689	4.611	5.533	6.456	7.378	8.300	9.222	10.144	11.067
333	"	3	3.700	4.625	5.550	6.475	7.400	8.325	9.250	10.175	11.100
334	"	4	3.711	4.639	5.567	6.494	7.422	8 350	9.278	10.206	11.133
335	"	5	3.722	4.653	5.583	6 514	7.444	8 375	9.306	10.236	11.167
336	"	6	3.733	4.667	5.600	6.533	7 467	8 400	9.333	10.267	11.200
337	"	7	3.744	4.681	5.617	6 553	7.489	8 425	9.361	10.297	11.233
338	"	8	3.756	4.694	5.633	6.572	7.511	8.450	9.389	10.328	11.267
339	"	9	3.767	4 708	5.650	6 592	7 533	8 475	9.417	10 358	11.300
340	"	10	3.778	4.722	5 667	6.611	7.556	8.500	9.444	10 389	11.333
341	"	11	3.789	4.736	5.683	6.631	7.578	8.525	9.472	10.417	11.367
342	"	12	3.800	4.750	5.700	6 650	7 600	8.550	9.500	10.450	11.400
343	"	13	3.811	4.764	5.717	6.669	7 622	8.575	9 528	10.481	11.433
344	"	14	3.822	4.778	5.733	6.689	7.644	8 600	9 556	10.511	11.467
345	"	15	3 833	4.792	5.750	6.708	7.667	8 625	9.583	10 542	11.500
346	"	16	3.844	4.806	5.767	6.728	7.689	8.650	9 611	10.572	11.533
347	"	17	3.856	4.819	5.783	6.747	7.711	8.675	9.639	10.603	11.567
348	"	18	3.867	4.833	5.800	6 767	7.733	8.700	9.667	10.633	11.600
349	"	19	3.878	4.847	5 817	6.786	7.756	8.725	9.694	10.664	11.633
350	"	20	3.889	4 861	5.833	6 805	7.778	8 750	9.722	10.694	11.667
351	"	21	3.900	4.875	5.850	6.825	7.800	8.775	9.750	10.725	11.700
352	"	22	3.911	4.889	5.867	6.844	7.822	8 800	9.778	10.756	11.733
353	"	23	3.922	4.903	5.883	6.864	7.844	8.825	9.806	10.786	11.767
354	"	24	3.933	4.917	5 900	6 883	7.867	8.850	9.833	10.817	11.800
355	"	25	3.944	4.931	5.917	6.903	7.889	8.875	9 861	10.847	11.833
356	"	26	3.956	4.944	5.933	6.922	7.911	8.900	9 889	10.878	11.867
357	"	27	3.967	4.958	5 950	6.942	7.933	8.925	9 917	10.908	11 900
358	"	28	3.978	4 972	5.967	6 961	7.956	8.950	9 944	10.939	11.933
359	"	29	3.989	4.986	5.983	6.981	7.978	8.975	9.972	10.969	11.967
360	"	30	4.000	5.000	6.000	7 000	8.000	9.000	10.000	11.000	12 000

	MOS	4%	5%	6%	7%	8%	9%	10%	11%	12%
30	1	0.333	0.417	0.500	0.583	0.667	0.750	0.833	0.917	1.000
60	2	0.667	0.833	1.000	1.167	1.333	1.500	1.667	1.833	2.000
90	3	1.000	1.250	1.500	1.750	2.000	2.250	2.500	2.750	3.000
120	4	1.333	1.667	2.000	2.333	2.667	3.000	3.333	3.667	4.000
150	5	1.667	2.083	2.500	2.917	3.333	3.750	4.167	4.583	5.000
180	6	2.000	2.509	3.000	3.500	4.000	4.500	5.000	5.500	6.000
210	7	2.333	2.917	3.500	4.083	4.667	5.250	5.833	6.417	7.000
240	8	2.667	3.333	4.000	4.667	5.333	6.000	6.667	7.333	8.000
270	9	3.000	3.750	4.500	5.250	6.000	6.750	7.500	8.250	9.000
300	10	3.333	4.167	5.000	5.833	6.667	7.500	8.333	9.167	10.000
330	11	3.667	4.583	5.500	6.417	7.333	8.250	9.167	10.081	11.000
360	12	4.000	5.000	6.000	7.000	8.000	9.000	10.000	11.000	12.000

	YRS.	4%	5%	6%	7%	8%	9%	10%	11%	12%
360	1	4.000	5.000	6.000	7.000	8.000	9.000	10.000	11.000	12.000
720	2	8.000	10.000	12.000	14.000	16.000	18.000	20.000	22.000	24.000
1,080	3	12.000	15.000	18.000	21.000	24.000	27.000	30.000	33.000	36.000
1,440	4	16.000	20.000	24.000	28.000	32.000	36.000	40.000	44.000	48.000
1,800	5	20.000	25.000	30.000	35.000	40.000	45.000	50.000	55 000	60.000
2,160	6	24.000	30.000	36.000	42.000	48.000	54.000	60 000	66.000	72 000
2,520	7	28.000	35.000	42.000	49.000	56 000	63.000	70.000	77.000	84 000
2,880	8	32.000	40.000	48.000	56.000	64.000	72 000	80.000	88 000	96.000
3,240	9	36.000	45.000	54.000	63.000	72.000	81.000	90.000	99.000	108.000
3,600	10	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000	120 000
3,960	11	44.000	55.000	66.000	77.000	88.000	99.000	110.000	121.000	132.000
4,320	12	48.000	60.000	72.000	84.000	96.000	10.800	120 000	132.000	144.000

Examples.

Find the interest on the following sums, for the time given at 5%.

$400.50 for 3 years. Answer, $60.075

$250.00 for 2 years, 6 months. Answer, $31.25

$1200.25 for 1 year, 8 months, 12 days. Answer, $102.02

$1500.00 for 2 years, 4 months, 6 days. Answer, $176.25

$900.90 for 1 year, 1 month, 14 days. Answer, $50 55

On the following, at 6 per cent:

$666.00 for 7 months, 26 days. Answer, $26.196

$1200 24 for 1 year, 6 months, 18 days. Answer, $111.62

$975.18 for 3 years, 3 months, 6 days. Answer, $191.135

$579.75 for 1 year, 10 months, 20 days. Answer, $65.705

$825.50 for 2 years, 3 months, 24 days. Answer, $114.74

On the following at 7 per cent:

$2127.40 for 1 year, 7 months, 18 days. Answer, $243.23

$500.28 for 2 years, 3 months, 27 days. Answer, $81.42

$1328.28 for 1 year, 8 months, 12 days. Answer, $158 065

$412.20 for 1 year, 2 months, 1 day. Answer, $33.74

$950.40 for 2 years, 3 months, 11 days. Answer, $151.72

$563.00 for 4 years, 2 months, 3 days. Answer, $164.536

On the following at 8 per cent:

$2640.15 for 1 year, 2 months, 27 days. Answer, $262.25

$850.32 for 2 years, 3 months, 3 days. Answer, $153.62

$1225.00 for 1 year, 9 months, 9 days. Answer, $173.95

$780.50 for 11 months, 18 days. Answer, $60.358

$656.70 for 1 year, 3 months, 27 days. Answer, $69.61

On the following, at 9 per cent:

$567.27 for 1 year, 10 months, 3 days. Answer, $94.025

$933.25 for 2 years, 2 months, 12 days. Answer, $184 78

$1221.06 for 1 year, 1 month, 27 days. Answer, $127.295

$2187.00 for 2 years, 2 months, 2 days. Answer, $427.558

On the following, at 3½ per cent:

$648.00 for 3 years, 3 months, 5 days. Answer, $74.025

$550.80 for 1 year, 8 months, 11 days. Answer, $32.719

$875.12 for 2 years, 4 months, 24 days. Answer, $73.51

What is the interest on $250.50 for 8 months at 3½ per cent?

What is the interest on $885 00 for 10 months and 9 days, at 4½ per cent? Answer $34.18

What is the interest on $1050.00 for 1 year, 2 months, 20 days, at 5½ per cent.?

What is the interest on $650.00 for 1 year, 6 months, and 22½ days, at 8 per cent.? Answer, $81.25

What is the interest on $750.50 for 1 year, 7 months and 19½ days at 8 per cent.? Answer, $98.31

What is the interest on $80 50 for 1 year and 10 months at 11 per cent.?

What is the interest on a note for $525.25 at 7 per cent, 8 months after date? Answer $24.51

How much is the principal and interest on a note for $1575.50, 1 year, 6 months, and 20 days after date, at 5 per cent. interest?

Bought a farm for $9000.00, one-third cash and balance in three equal annual payments. Interest to be paid annually at 6½.% How much interest each year, and how much altogether?

Bought 3,000 bushels of corn at .45 per bushel. Paid half cash and the balance in 9 months with 5 per cent. interest. How much was due in 9 months and how much in all?

A has $10150.00 to lend for 2 years, 6 months and 18 days. B borrows one-half at 7½ per cent, C takes the balance for the same time at 7 per cent. How much interest did each pay when due?

Answer, { B$970.59
C 905.887

Bought a stock of goods for $24624.00 to be closed out in 18 months. Borrowed $12624.00 for 9 months and $12000.00 for 1 year and 6 months, at 6 per cent. Sold the goods at 20 per cent. profit and pay $500 per year for rent, and 4½ per cent. to salesman on gross sales. How much do I make in the transaction?

Condensed Tenths.

In this manner of counting interest we condense the tenths.

All interest is counted and carried to the left by tens, and we adopt the following plan in order to get divisors for the different rates per cent. Divide 36 by the rate per cent. and that will give us a divisor to divide the time or the principal. At 4% it takes 9 days before we gain $\frac{1}{10}$ of a unit.

At 5% it takes $7\frac{1}{5}$ days.
At 6% it takes 6 days.
At 7% it takes $5\frac{1}{7}$ days.
At 8% it takes $4\frac{1}{2}$ days.
At 9% it takes 4 days.
At 10% it takes $3\frac{6}{10}$ days.
At 11% it takes $3\frac{3}{11}$ days.
At 12% it takes 3 days.

36 being one-tenth of 360 days, divide 36 by the rate per cent. and take the quotient as a divisor, for the time *reduced to days*. Multiply this by the principal and the result will be the interest, or divide the principal and multiply by the time. We can divide either the time or the principal, but in either case the quotient must be multiplied by the other factor, as we already have the the tenths condensed and have the rate per cent. in the divisor.

For 5%, 7%, 10% and 11% it is best to divide the entire time or principal by 36 and then multiply by the rate per cent., as it is difficult to handle these small fractions as divisors.

EXAMPLE 1. Find the interest on $210.00 for 6 months at 8%.

6 months=180 days.

8)36 00
4.5)180
40 tenths or 4 cents.

210
.04
$8.40

EXAMPLE 2. Find interest on $6,846.00 for 3 days at 6%.

6)6846
1141
3
$3.42,3

EXAMPLE 3. Find the interest on $9,729.00 for 5 days at 8%.

4.5)9729
2162
5 days.
$10.81,0

EXAMPLE 4. Find the interest on same sum, for 5 days at 6%.

6)9729

1621½

5

$8.10,7½

Find interest on same sum for same time at 7%.

36)9729

270¼

7

1891¾

5

$9.45,8¾

Observe that in the above examples we have but one-tenth below the zero line, and any fraction that is annexed either in the time or the principal, is cut off. In the fraction of a dollar, cut off two places and as many tenths, hundredths, thousandths, etc., as are annexed. In examples 2 and 4, where we divide the principal by 6, we get one-sixth of the principal, and by multiplying the one-sixth by any number of days, and cutting off the right hand figure, we have the interest for the given number of days at 6%. In the 4th example should we have any other per cent. than six, the interest can be obtained by dividing a second time by 6 or the whole principal by 36, and multiplying first by the rate per cent. and then by the time.

When it occurs that the divisor for the rate per cent. equals the time, cut off the right hand dollar figure of the principal, and the interest remains. See following example:

Find the interest on $6,450.00 for 6 days at 6%.

6)6450
107.5
6
$645.0

Find the interest on $6,390.00 for 9 days at 4%.

9)6390
710
9
639.0

Answer $6.39.

Miscellaneous Problems.

EXAMPLE 1. In what time will $900.00 gain $11.00, at 5%?

.05)360 days in 1 year.

7200

11

900)79200

88 days.

If it takes 7200 days to gain $1.00, to gain $11.00 it will take 11 times 7200 days, or 79200 days. But as 900 times 88 days equals 79200 days, it is obvious that 88 days is the time required to gain $11.00.

EXAMPLE 2. In what time will $924.00 gain $151.53.6, at 6%?

151.53.6

6)36(6

924)909.21.6(984 days=2 years, 8 months, 24 days.

EXAMPLE 3. How much money in 2 years, 6 months, at 7% will amount to $136.53 5?

2 years=24 months.

6 "

12)30 "

2.5

7

175 on $1.00 for given time, and $1.00 with the interest for 30 months=1.175.

1.175)136 535

$116.20

EXAMPLE 4. Received $381.15 for 3 years, 3 months, 18 days, on a note of $1,650, what is the rate per cent.?

3 years=36 months.
3 "
39 "
12)396
33

3)18 days.
6

1650
33
4950
4950
54.45)381.15(7%

$3\frac{3}{10}$ is 1 per cent. of one dollar for the given time, and on $1650.00 there will be $3\frac{3}{10}$ times $1650.00 which is $54.45, and 7 times $54.45 equals $381.15. Therefore, 7 is the required rate per cent.

EXAMPLE 5. In what time will $2,000 amount to $2,340, at 8%?

2340
2000
340
8)360 45
45 1700
1360
2000)15300
765 days=2 years, 1 month, 15 days.